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Clitopilus byssisedoides, a new species from a hothouse in Germany

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Abstract — *Clitopilus byssisedoides* is described as a new species found in a hothouse in Botanischer Garten Jena, in Jena, Germany, of unknown, possibly tropical origin. In this study, it is described, illustrated and distinguished from other pleurotoid *Clitopilus* species with rhodocyboid spores, particularly from other members of (*Rhodocybe*) sect. *Claudopodes*

Key words — *Entolomataceae,* phylogeny, taxonomy

Introduction

Gminder (2005) described a remarkable pleurotoid species with rhodocyboid spores from a hothouse in the botanical garden in Jena, Germany. It was provisionally called "*Rhodocybe byssisedoides*" because of its resemblance to *Entoloma byssisedum* (Pers.) Donk. In a recent molecular phylogenetic study of the *Entolomataceae* (where this new species was included as "*Rhodocybe* sp."), it has been shown that *Clitopilus* is nested within *Rhodocybe*. As a result, both genera were merged into *Clitopilus* sensu lato (Co-David et al. 2009). In this study, we formally describe the new species, *Clitopilus byssisedoides* and compare it to the other pleurotoid taxa.

Material and methods

The morphology was studied on dried material with standard methods, using sections mounted in either ammonia 5% or Congo red and a Leica DM1000 microscope. Microscopic structures were drawn with help of a drawing tube.

Taxonomic description

Clitopilus byssisedoides Gminder, Noordel. & Co-David, **sp. nov.**

MycoBank # 515443 Fig. 1, Plate 1.

Basidiocarpia pleurotoidea ad 20 mm lata cinerescentia incarnate hygrophanea glabra, lamellae modice distantes cremeo cinereae ochrascentes, sporae 5.5–7 µm longae 4–4.5 µm latae pustuluata vel leniter angulares lateraliter visu, pseudocystidia fibulaeque desunt. Ligno putrescente in olla cum Phalaenopside sp. in caldaria tropica.

***Holotypus**: Germania, Jena, 27.IV.2004, A. Gminder (L), isotypus in herbario Gminder sub numero 20040050.*

Etymology: *byssisedoides* = referring to the resemblance to *Entoloma byssisedum*.

Macrocharacters — Basidiocarps pleurotoid, dorsally attached to its substratum with distinct rhizomorphs. Pileus up to 20 mm broad, conchate/shell-shaped with undulating involute margin, grayish incarnate, hygrophanous, translucently striate, glabrous. Lamellae moderately distant, rather distant creamy-grey turning dark ochre with age. Stipe lacking. Context very thin, watery grayish cream.

Microcharacters — Spores 5.5–7 × 4–4.5 µm, Q = 1.3.5–1.55–1.65, elliptical to pip-shaped, slightly thick-walled, pustulate, in profile weakly angular under a light microscope, strongly cyanophilous. Basidia 15–32 × 5–9 µm, 4–spored. Lamella edge fertile, cystidia absent, pseudocystidia absent. Pileipellis a compact cutis of narrow (2–6 µm wide), cylindrical hyphae, gradually passing into pileitrama with incrusted pigment. Pileitrama regular, made up of 4–12 µm wide, cylindrical hyphae. Clamp-connections absent.

Habitat — On decayed wood in pot with *Phalaenopsis* (*Orchidaceae*) in a tropical hothouse.

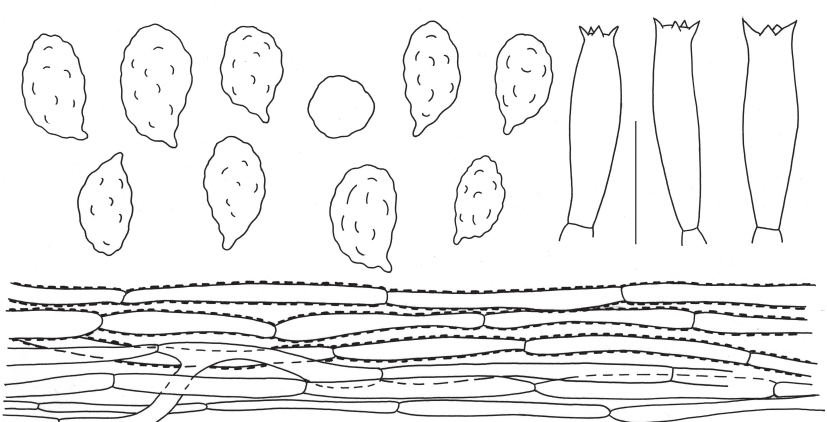

Fig. 1. *Clitopilus byssisedoides*. Spores, basidia, and pileipellis (holotype). Bar = 10 µm

Plate 1. *Clitopilus byssisedoides*. Habit (holotype). Photo A. Gminder.

Comments — *Clitopilus byssisedoides* is remarkable because there are only a few pleurotoid species of *Clitopilus* with rhodocyboid spores that have been described, and most of them are only known from their type locality.

This new species fits well in (*Rhodocybe*) section *Claudopodes* Singer ex T.J. Baroni (Baroni 1981), the section containing species with stipe either absent or laterally placed and with pseudocystidia with brightly colored content absent.

Since it is likely of tropical origin, *C. byssisedoides* is compared with all known pleurotoid, rhodocyboid-spored *Clitopilus* species. It can be distinguished as follows: *Clitopilus claudopus* (Singer ex T.J. Baroni) Noordel. & Co-David, known from Argentina, has a yellowish brown, cracked-rimose pileus, well-developed eccentric stipe, and short, globose to subglobose spores (Baroni 1981). *Clitopilus pleurogenus* (Pegler) Noordel. & Co-David from Tanzania is described with an ash grey pileus, and short, globose spores (Pegler 1977). *Clitopilus rhizogenus* (T.J. Baroni & E. Horak) Noordel. & Co-David from the USA differs by its pale argillaceous to pale brownish-orange, fibrillose, estriate pileus, well-developed, central to eccentric stipe, and well-developed cheilocystidia (Baroni & Horak 1994). *Clitopilus paurii* (T.J. Baroni, et al.) Noordel. & Co-David from India, differs by its much darker colour, tomentose pileus, and small subglobose spores (Moncalvo et al. 2004). *Clitopilus crystallinus* (T.J. Baroni) Noordel. & Co-David from Venezuela is a white, dimidiate species with densely tomentose pileal surface (Baroni & Horak 1994). Two species described by Horak also differ considerably from our species and cannot be conspecific: *Clitopilus albovelutinus* (G. Stev.) Noordel. & Co-David from New Zealand has whitish fruitbodies and a well developed lateral stipe (Horak 2008), and *C. lateralipes* (E. Horak) Noordel. & Co-David from Papua New Guinea shares the pale brown, striate pileus with *C. byssisedoides* but has a short, lateral stipe and ovoid to subglobose spores (Horak 1979). *Clitopilus balearicus* (Courtec. & Siquier) Noordel. & Co-David, the only previously reported European species with conchate basidiocarps, differs not only in having purely white pileus, but also by the presence of pseudocystidia which places it in another (*Rhodocybe*) section, *Crepidotoides* Singer ex T.J. Baroni (Courtecuisse & Siquier 1997).

Ongoing phylogenetic studies within the Rhodocybe–Clitopilus clade confirms that *C. byssisedoides* belongs to the subclade with a mixture of other species from sections *Rhodocybe*, *Decurrentes* and *Rufobrunnea*. The results of these studies will be published in due course.

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Literature cited

Baroni TJ. 1981. A revision of the genus *Rhodocybe* Maire (*Agaricales*). Beih. Nova Hedwigia 67: 1–194.

Baroni TJ, Horak E. 1994. *Entolomataceae* in North America III: New taxa, new combination and notes on species of *Rhodocybe*. Mycologia 86(1): 138–145.

Co-David D, Langeveld D, Noordeloos ME. 2009. Molecular phylogeny and spore evolution of *Entolomataceae*. Persoonia 23: 147–176.

Courtecuisse R, Siquer JL. 1997. *Rhodocybe balearica* nov.sp. Bolletino Gruppo Micologico G. Bresadola Nuova Serie 40: 181–186.

Gminder A. 2005. Erstfunde von *Hydropus fluvialis*, *Lactocollybia cycadicola* und *Mycena neospeirea* in Deutschland, sowie weitere interessante Funde aus den Tropenhäusern des Botanischen Gartens von Jena (Thüringen). Boletus 28(1): 1–17.

Horak E. 1979. Fungi agaricini novaezelandiae. VII. *Rhodocybe* Maire. New Zealand Journal of Botany 17: 275–281.

Horak E. 2008. *Agaricales (Basidiomycota*) of New Zealand. 1. Pluteaceae, Entolomataceae. Fungi of New Zealand / Ngā Harore o Aotearoa, vol. 5. Hong Kong, Fungal Diversity Press.

Moncalvo JM, Baroni TJ, Bhatt RP, Stephenson SL. 2004. *Rhodocybe paurii*, a new species from the Indian Himalaya. Mycologia 96(4): 859–865.

Pegler DN. 1977. A revision of *Entolomataceae* (*Agaricales*) from India and Sri Lanka. Kew Bull. 32: 189–220.